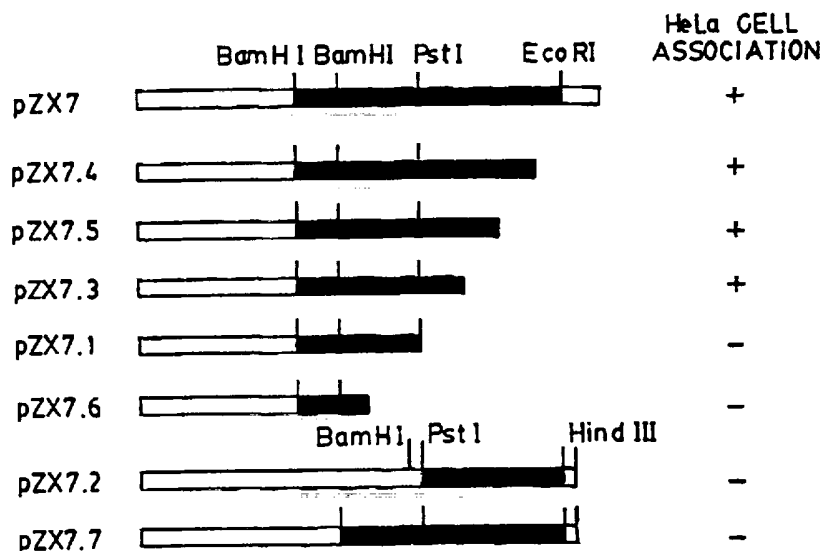




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(54) Title: DNA MOLECULE ENCODING FOR CELLULAR UPTAKE OF MYCOBACTERIUM TUBERCULOSIS



(57) Abstract

The present invention relates to a DNA molecule conferring on *Mycobacterium tuberculosis* an ability to enter mammalian cells and to survive within macrophages. The protein encoded by this gene fragment is useful in vaccines to prevent infection by *Mycobacterium tuberculosis*, while the antibodies raised against this protein can be employed in passively immunizing those already infected by the organism. Both these proteins and antibodies may be utilized in diagnostic assays to detect *Mycobacterium tuberculosis* in tissue or bodily fluids. The protein of the present invention can be associated with various other therapeutic materials, for administration to mammals, particularly humans, to achieve uptake of those materials by such cells.

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INTERNATIONAL SEARCH REPORT

Intern nal Application No

PCT/US 94/09863

A. CLASSIFICATION OF SUBJECT MATTER

IPC 5 C12N15/12 C07K14/35 C07K16/12 C12N1/21 A61K38/16
 A61K39/04 G01N33/569 //(C12N1/21,C12R1:32)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	SCIENCE, vol.261, 10 September 1993, LANCASTER, PA pages 1454 - 1457 ARRUDA S;BOMFIN G;KNIGHTS R;HUIMA-BYRON T;RILEY L W ; 'Cloning of an M. tuberculosis DNA fragment associated with entry and survival inside cells' see the whole document --- -/--	1-52

☒ Further documents are listed in the continuation of box C.☐ Patent family members are listed in annex.

* Special categories of cited documents :

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 "O" document referring to an oral disclosure, use, exhibition or other means
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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 March 1995

Date of mailing of the international search report

16. 03. 95

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 94/09863

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ABSTR GEN MEET AM SOC MICROBIOL, vol.92, 1992 page 41 ARRUDA S;BOMFIM G;JOHNSON W D JR;RILEY L W; 'CLONING OF A MYCOBACTERIUM-TUBERCULOSIS GENE NECESSARY FOR INVASION OF CULTURED EPITHELIAL CELLS' & 92ND GENERAL MEETING OF THE AMERICAN SOCIETY FOR MICROBIOLOGY, NEW ORLEANS, LOUISIANA, USA, MAY 26-30, 1992. See Abstract -----	1-52

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/09863

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 11,12,22,23,28,29,33,34 are directed to a method of treatment of the human/animal body as well as diagnostic methods, (Rule 39.1(iv)PCT) the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.